**Pattern Blocks Ideas**

**Multiple Uses** (Steve & Liz)

1. Congruent shapes. Take a yellow hexagon; now make a bigger hexagon. What's the area?

2. Geometry problems. E.g. Can you make a trapezoid using all of the tiles?

3. Fractions. E.g. A parallelogram is two triangles = 1/2

4. Probability. What's the probability to draw a red block? What if we made a dartboard of these blocks - what's the probability of scoring a certain colour?

**Translations, reflections, and rotations** (Nathan & Hailey)  
Take a piece of paper and fold it in half twice, so you have four quadrants

Let your students make an object out of the patterns blocks in one of the quadrants, and get them to reflect, rotate, or translate the object into other quadrants. Use 3D objects, if you want a challenge!  
Tracing might help too!

**Congruent Figures**

Create congruent figures made up of different shapes. Create the following shapes, ensuring that no two shapes are made up of the same amount of each tile.

1. Create at least three congruent triangles. One must have a yellow octagon, and one must have at least one red trapezoid.
2. Create congruent parallelograms.
3. Create congruent trapezoids.

**Dividing Fractions** (Steve)

How many greens are "in" a yellow?    
If the yellow is a whole, then what fraction does a green represent?   
(1/6)  
If there are 6 greens "in" a yellow then the quotient of 1 and 1/6 is   
6.    
Now how many reds are "in" a yellow (2).    
What fraction does a red represent? (1/2).    
How many greens are in a red? (3).    
So what is the quotient of 1/2 and 1/6? (3) - we have divided fractions!

**Visualizing Fractions** (Jess & Eddie)

Use the variety of shapes to visualize and compare – showing: ½, 1/3, 2/3, etc.

Example: Green Triangle is one half of Blue Diamond, is one third of Red Trapezoid, is one eight of Yellow Octagon.

**Calculating Fractions**

Give your students the outline of a shape that can be made with the pattern blocks, have them make the shape (don’t tell them what blocks to use, just have them make it). When they are done, have them calculate what fraction of the area is red, what fraction is yellow, etc. Repeat with several shapes.

**Calculating volume of rectangular prisms** (Jess & Eddie)

Use for demonstrating how to calculate the area of rectangular prisms. Stack shapes to show that volume depends on base area and on height.

Example: Triangular prism as base. 3 triangles high, you can use to calculate the volume of the triangular prism.

**Area & Perimeter** (Kay & Mala)

As the students to create an irregular figure using any of the pattern block shapes. Using the length of the triangle as 1 unit, how many units is the perimeter of the shape? Using the area of the triangle as 1 unit sq. **(or a half unit - Robin's idea)**, how many triangles would cover your shape?

**Volume**

Students can take the any 3D shape and find the volume of the shape if they know the base it. For example, if they know the base of the triangle, then they can find the volume of a triangular prism made up of 6 triangles.

**Area and Perimeter** (Kathryn & Greg )

To do this activity, students will make patterns of a defined perimeter and/or area. They will use the triangle graph paper to write down their responses. (1 unit = side length of green triangle)

Create a pattern with a perimeter of 15 units.

Create a pattern with a perimeter of 7 units.

Create a pattern with an area of 30 units2.

Create a pattern with an area of 17 units2.

Create a pattern with a perimeter of 6 units, and area of 6 units2.

Create a pattern of your own. Then determine the perimeter and the area.

**Patterning/ Fractions** (Michelle B and Heather)

1. Start by making as many hexagons as possible (ex: 2 red blocks or 3 blue or 2 blue and 2 green... etc)
2. Figure out what each blocks fraction is (comparing to the whole hexagon)

Ex: Red Block = 1/2

Green Block = 1/6... etc

1. Show Mathematically how each hexagon adds up to a whole.

Ex: 2 blue blocks and 2 green = 1/3 + 1/3 + 1/6 + 1/6 = 6/6 = 1

**Patterned floor tile using pattern blocks** (Vicky & Amy)

* Give the students a bag of pattern tiles
* Tell them they are to create a pattern that they would like to use to tile their kitchen in the future
* Once they have a pattern in front of them, tell them to find the area of their patterned tile where the area of the triangular piece is one unit